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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

CUNED, K

ART UNIT

PAPER NUMBER

2841

DATE MAILED:

10/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

9/658838

Applicant(s)

Examiner

Cuned

Group Art Unit

2841

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 9/24/01
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-22 is/are pending in the application.
- Of the above claim(s) 19-22 is/are withdrawn from consideration.
- ☐ Claim(s) is/are allowed.
- ☒ Claim(s) 1-18 is/are rejected.
- ☐ Claim(s) is/are objected to.
- ☐ Claim(s) are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s).
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

DETAILED ACTION

Election/Restriction

1. Applicant's election without traverse of Group II in Paper No. 8 is acknowledged.

Drawings

2. The drawings are objected to for the following reasons.

The figures are improperly cross hatched. All of the parts shown in section, and only those parts, must be cross hatched. The cross hatching patterns should be selected from those shown on page 600-81 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP 608.02.

Drawing corrections in compliance with MPEP 608.02(v) are required in response to this office action.

Specification

3. The specification is objected to for the following reasons.

At page 26, the chemical composition for the registered trademark Desolite must be specified.

Correction is required of these and any similar errors in response to this office action.

Treatment of Claims Based on Language and Format

4. 35 USC 112, second paragraph, states:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2, 5, 10-11 and 12-18 are rejected under 35 USC 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2, line 2, "composite tape" lacks proper antecedent basis. This applies to claim 5 as well.

Claim 10: The scope of this claim is unclear, because it is unclear what structural limitation is implied by the functional limitation that the sealing structure prevents cryogen infiltration. Is the presence of the sealing structure sufficient, or is this claim further reciting that cryogen is not present between the sealing structure and the wire. Examiner assumes that the claim recites the existence of a seal. Any functional capability is therefore assumed inherent.

Claim 11 is indefinite in scope because it recites specifics of the cryogen which is not positively recited in claims 10 or 1. Therefore, this claim is presumed commensurate in scope with claim 10 and treated under the same grounds of art.

Claim 12 is indefinite in scope: it is unclear whether the recited functions of withstanding the thermal cycling and lack of degradation result from the already-recited structure of having a polymeric layer encircling the superconductor, or whether these functions imply other structure not explicitly recited in the claim. Examiner assumes the former.

Claim 13 is indefinite in scope because it recites specifics of the cryogen which is not positively recited in claim 12. Therefore, this claim is presumed commensurate in scope with claim 12 and treated under the same grounds of art.

These and **all similar** errors must be corrected in response to this office action.

Treatment of Claims Based on Prior Art

6. 35 USC 102 includes the following sections which state:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 3719 (c) of this title before the invention thereof by the applicant for patent.

7. Claims 1, 12 are rejected under 35 USC 102(b) as being anticipated by Sato et al. (US 5114908, hereafter Sato 908).

Claims 1 and 12: Figure 3 shows superconducting wires (3) surrounded by sealing structure (12). The sealing structure is a cured polymer layer (FRP) encircling the outside surface of the wires.

8. Claims 1, 2, 6, 8-14 are rejected under 35 USC 102(b) as being anticipated by Sato et al. (US 5276281, hereafter Sato 281).

Claims 1 and 12: Figure 2 shows superconducting wires (6) surrounded by sealing structure (8). The sealing structure is a cured polymer layer (Teflon®) encircling the outside surface of the wires.

Claim 2: The metallic tape is (7).

Claim 6: The wire is a tape including outer top, bottom and side faces.

Claims 8-9: The wire is constructed from superconducting material in a silver matrix. The layer of silver below the superconducting material is considered as a metallic substrate supporting the superconducting material.

Claims 10-11: The sealing structure is present. See the rejections under section 112, above.

Claim 13: See the explanation above for claim 12 and the rejection under section 112.

Claim 14: Figure 2 discloses a cable.

9. 35 USC 103(a) states:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Obviousness under 35 USC 103(a) is determined against a background established by the factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), which are summarized in items 1-4 below.

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 USC 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 USC 103(c) and potential 35 USC 102(f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1, 3-5, 7-8, 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woolf et al. (US 4647888, hereafter Woolf).

Claims 1 and 12: Composite superconducting wires (10) surrounded by sealing structure (11). The sealing structure is a cured polymer layer (Column 3 at lines 21-30) encircling the outside surface of the wires.

Woolf discloses the claimed invention except for specifying that the wires are ceramic. Nevertheless, Woolf states at column 3, lines 4, that any new superconducting material may be used. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use ceramic material for the wire of Woolf to enable higher coolant temperatures and larger current carrying capacity, because use of ceramic superconducting material at the time of the claimed invention (1999) was routine in the art.

Claims 3-5: The sealing structure has conductive media (22) dispersed in it as seen in figures 2 and 3. Some material used for media (22) are specified in the table in column 6. As the structure (11) is in contact with the length of the wire (10), the polymer layer will be conductive along the direction parallel to the thickness of the composite wire.

Claim 7: Woolf discloses the claimed inventions as explained with respect to claim 1 above, except for disclosing that wires are greater than 50 meters. Nevertheless, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to form the wires of Woolf over 50 meters and wind them into a coil, because formation of wires in lengths greater than 50 meters for the formation of a coil (to make a coil of sufficient length) is well known in the art.

Claim 8: The filaments are (18).

Claims 10-11: The sealing structure is present. See the rejections under section 112,

above.

Claim 13: See the explanation above for claim 12 and the rejection under section 112.

Claims 14-15: The wire is in the form of a cable and made into a coil.

Claims 16-17: The claimed properties are inherent to the material of the sealing structure, see column 3 at lines 21-30.

12. Claims 7 and 15 are rejected under 35 USC 103(a) as being unpatentable over Sato 281.

Sato 281 discloses the claimed inventions as explained with respect to claim 1 above, except for disclosing that wires are greater than 50 meters and except for disclosing that the wires are formed into a coil. Nevertheless, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to form the wires of Sato over 50 meters and wind them into a coil, because formation of wires in lengths greater than 50 meters and winding them into coils to form magnets (one of the most prevalent uses of superconducting wires) is well known in the art.

Related Prior Art

13. The following references are considered pertinent to the present application.

Okadu et al. (5637260), column 5 at lines 10-20, teach use of conductive polymer as a sheath to superconducting material. A conductive sheath has the benefit of shunting current upon quenching.

Serial Number: 09/658838

Art Unit: 2841

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Closing

14. Any inquiries related to the examination of this application should be directed to Ex. K. Cuneo at (703) 308-1233 or her supervisor Ex. J Gaffin at (703) 308-3301. Inquiries of a general nature should be directed to the receptionist of Group 2800 at (703) 308-0956. The fax numbers for Group 2800 are (703) 308-7722 and 7724.



K. Cuneo
Primary Examiner Group 2841
October 20, 2001